

MR3643-11

Application Serial No.10/799,666

Responsive to Office Action dated 26 June 2006

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CENTRAL FAX CENTER****OCT 26 2006****REMARKS/ARGUMENTS**

This case has been carefully reviewed and analyzed in view of the Office Action dated 26 June 2006. Responsive to the Office Action, Claims 1-4 have been canceled. New claims 5-12 have been inserted to more clearly define the inventive concept. Claims 5-12 are pending in the subject Patent Application.

In the Office Action, the Examiner rejected Claims 1-3 under 35 U.S.C. § 102(b) as being anticipated by Japanese reference 5-157220, hereinafter '220. The Examiner also rejected Claim 1 under 35 U.S.C. § 102(b) as being anticipated by Japanese reference 6-346806, hereinafter '806. Lastly, the Examiner rejected Claim 4 under 35 U.S.C. § 103(a) as being unpatentable over '220 in view of Japanese reference 60-44715, hereinafter '715.

Before discussing the references relied upon by the Examiner, it is believed beneficial to initially and briefly review the structure as more clearly defined by the newly inserted claims. The claimed fuel filter with fuel-activating function includes among its combination of features: a housing 12 having an inlet 111 and outlet. A filtering element 13 is mounted within the housing 12 to filter the fuel. The filtering element 13 is fluted to maximize surface area and reduce pressure drop across the filter. An infrared emitting element 14, 16, 17 is located adjacent to the fluted filtering element to activate the fuel.

In providing a fluted filtering element where surface area is maximized, among the benefits derived are: a reduced pressure drop across the filter and extended filter element

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life. Still further, the unique combination of features of the invention, including having all filtering performed by a single fluted filter element, allows for ease of cleaning, as well as modular replacement. This will further the operational life of the system, allowing selective replacement, repair, and upgrade rather than replacement of the entire fuel filter when any one component fails. In this manner the manufacturing costs, operating costs, and servicing requirements are reduced while the modularity and operating life of the system is improved.

The Examiner has rejected the originally filed claims 1-3 under 35 U.S.C. § 102(b) as being anticipated by '220. The '220 reference is directed to a magnetic, infrared filter. The '220 device has three annular rings of a filtering element 7 that emit infrared radiation. Inside a central chamber, two gauze nets 21 enclose stones having an electric current flowing through them. At least six opposed magnets line the sides of the inner filter area.

However, '220 does not disclose, allude or suggest the reduction in pressure drop, increased modularity, ease of service, or reduction in manufacture and operating costs afforded by the maximization of surface area embodied in a single bodied fluted filter.

Thus, the '220 reference does not provide for: "... a fluted filtering element mounted within said housing for filtering fuel passing therethrough..." as defined by newly inserted independent Claim 5.

In opposition, the '220 reference discloses a device which does not provide modularity, or maximization of filter surface area. '220 teaches a series of small surface

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area, non-fluted annular ring filter elements 7, and a plurality of gauze nets 21 that the fuel must pass through successively. As these are serially disposed and of small surface area this will provide a great resistance to flow, resulting in a large drop in pressure and efficiency. The '220 reference further teaches away from the modularity of design and resulting improvements in serviceability as seen in drawing 1 of '220 as the housing is multi-chambered with each chamber having it's own filter elements. Of particular importance, gauze nets 21 are inaccessible without complete disassembly of the entire device. Still further, the lower two annular rings of filtering element 7 are also inaccessible for cleaning. The '220 device is not configured for, nor intended for the maximization of filter surface area, nor modular design as is necessary for newly inserted independent Claim 5.

The Examiner has rejected the originally filed claim 1 under 35 U.S.C. § 102(b) as being anticipated by '806. The '806 reference is directed to a fuel filter. The '806 device has two filtering arrangements 9, effectively two other filtering elements 5a, and an infrared emitting material 10.

However, the '806 reference suffers from the same disadvantages as the '220 reference and does not disclose, allude or suggest the reduction in pressure drop, increased modularity, ease of service, or reduction in manufacture and operating costs afforded by the maximization of surface area embodied in a single-bodied fluted filter.

Thus, the '806 reference does not provide for: "...a fluted filtering element mounted within said housing for filtering fuel passing therethrough..." as defined by

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newly inserted independent Claim 5.

In opposition, the '806 reference discloses a device which does not provide modularity, or maximization of filter surface area. The '806 reference teaches a series of small surface area, non-fluted filter elements 9 and 5a, as well as two separate chambers packed with ceramic grain particles that the fuel must pass through successively. As these also are serially disposed and of small surface area, this path of four successive filters and two chambers extending the entire length of the device of tightly packed particles will provide a great resistance to flow, resulting in a large drop in pressure and efficiency.

The '806 reference also teaches away from the modularity of design and resulting improvements in serviceability as seen in drawing 1 of '806 as the housing is multi chambered with each chamber having it's own filter elements 9, and 5a. Of particular importance, filter elements 5a are inaccessible without complete disassembly of the entire device and purging of all the ceramic grains 10 of 1a and 1b. The '806 device is not configured for, nor intended for the maximization of filter surface area, nor modular design as is necessary for newly inserted independent Claim 5.

The Examiner has rejected the originally filed Claim 4 under 35 U.S.C. § 103(a) as being unpatentable over '220 in view of '715. The '220 device is described supra. The '715 reference is directed to a bunsen burner with cup-shaped infrared emitting porous material. It is respectfully submitted that '220, even when combined with '715 fails to disclose a fluted filter element as well as the unique combination of features

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recited by the pending Claims for the purposes and objectives disclosed in the subject Patent Application.

As Claims 6-12 all are ultimately dependent upon newly inserted independent Claim 5, the Claims are now believed to show patentability for at least the same reasons as presented above.

As none of the cited references taken alone, or in combination disclose, allude, or suggest the unique combination of features recited by the pending Claims, it is not believed that they can make obvious the subject Patent Application whether taken alone or in combination. It is now believed that the subject Patent Application has been placed in condition for allowance, and such action is respectfully requested.

If there are any fees necessary in this filing, the Director of Patents and Trademarks is hereby authorized to charge deposit account # 18-2011 for such additional charges.

Respectfully submitted,  
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I hereby certify that this paper is being facsimile transmitted to the U.S. Patent and Trademark Office, Art Unit #1723, facsimile number 571-273-8300 on the date shown below.

26 October 2006  
Date

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